

METHOD AND APPARATUS FOR SWITCHING PACKETS IN A PASSIVE OPTICAL NETWORK

ABSTRACT

One embodiment of the present invention provides a system that performs packets switching in a passive optical network which includes a central node and at least one remote node. After receiving a packet, the system obtains a first set of results by performing a first lookup based on a first set of values derived from the packet. The system also obtains a second set of results by performing a second lookup based on a second set of values derived from the packet. Next, the system merges the first set of results and the second set of results, and produces a merged value. The system then obtains a subsequent result by performing a subsequent lookup with the merged value. If the packet is a downstream packet, the system derives a logical identifier corresponding to one or more remote nodes from the subsequent result. The system then incorporates the logical identifier into the packet and transmits the packet to one or more remote nodes.